Docket No.: 1344.1001

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re the Application of:

Masaki IWAMOTO et al.

Serial No. 09/014,422   Group Art Unit: 2178

Confirmation No. 4490

Filed: January 27, 1998   Examiner: Cong-Lac Huynh

For: INTERACTIVE DATA ANALYSIS SUPPORT APPARATUS AND MEDIA ON WHICH IS RECORDED AN INTERACTIVE DATA ANALYSIS SUPPORT PROGRAM

BRIEF OF APPELLANTS

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Sir:

In a Notice of Appeal filed November 20, 2003, the Applicants appealed the Examiner's May 22, 2003 Office Action finally rejecting claims 1-8, 10-19 and 21-26. Therefore, appellants' brief is due January 20, 2004. A Petition for a one-month extension of time, together with the requisite fee for same, is submitted herewith, thereby extending the period for response to February 20, 2004. Appellants' brief (in triplicate) together with the requisite fee set forth in 37 C.F.R. § 1.17(f) is submitted herewith.

I.   REAL PARTY IN INTEREST (37 CFR § 1.192(c)(1))

The real party in interest is Fujitsu Limited, the assignee of the subject application.

II.   RELATED APPEALS AND INTERFERENCES (37 CFR § 1.192(c)(2))

Appellants, Appellants' legal representatives and the assignee are not aware of any other appeals or interferences which will directly affect or be directly affected by, or have a bearing on, the Board's decision in the pending appeal.

III.   STATUS OF CLAIMS (37 CFR § 1.192(c)(3))

Appealed claims 1-8, 10-19 and 21-26 have been rejected.

IV.   STATUS OF AMENDMENTS (37 CFR § 1.192(c)(4))

Appellants' Amendment under 37 CFR 1.116 filed October 22, 2003 presented claim amendments to claims 1, 3, 6-8, 12, 14, 16-19, 23 and 26. This amendment was entered by the Examiner for purposes of Appeal as confirmed by an Advisory Action mailed November 4, 2003.

V.   SUMMARY OF INVENTION (37 CFR § 1.192(c)(5))

Referring to Figures 1-3, the features of the present invention as set forth in the claims are summarized below. Figures 1 and 2 illustrate a system structure of an embodiment in which the claimed interactive data analysis support apparatus in accordance with the invention is realized in a general purpose computer system, such as the system 10 of Figure 2. The interactive data analysis support program can be stored, for example, in a portable storage medium such as a CD ROM or the like installed on a magnetic disk serving as auxiliary storage device 15, from a CD ROM drive, to execute the interactive data analysis support program (page 10, lines 7-10).

Referring, for example, to the claim language of claim 1, both a reviewed information collecting section 34, located on the server side, and a reviewed information summarizing section 24, located on the client side, are random extraction devices for automatically extracting a random sampling of data from a database such as a data warehouse 32 (page 14, lines 7-14 and page 17, lines 11-16).

An OLAP (Online Analytical Procedure) client section 21 comprises an OLAP 2a which acts as cross tabulation display device for displaying according to summing up conditions to set a range to be displayed a cross tabulation in which the random sampling of the data extracted

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from the database by the random extraction device is cross summed up (page 10, lines 18-23 and page 15, lines 18-23).

A visualizer 22a includes a cell specifying device for specifying at least one cell among a number of cells constituting said cross tabulation (page 12, lines 22-25). The visualizer section 22, the data mining section 23, the reviewed information summarizing section 24, the data mining section 33, and the reviewed information collection section 34 form a graph display device for displaying the random sampling of data extracted from the data base as a graph within the range of the cell specified by said cell specifying device (page 15, lines 18-23).

In accordance with the present invention which includes a random extraction device for automatically extracting a random sampling of data from a database, a graph is displayed based on the extracted data. With this construction, only a predetermined number of records are extracted at random by the random extraction device, and a graph is displayed based on the extracted records. As a result, the number of records used for the display of the graph is reduced so that the time for reading out the records from the database is reduced. It therefore becomes possible to prepare the display at a high speed in the graph display device. Even if the system does not have a high speed processing capability, a sufficient operation speed can be assured and the data analysis processing and a lower cost can be achieved (page 4, line 29 to page 5, line 7).

VI.   ISSUES (37 C.F.R. § 1.92(c)(6))

The primary issue is whether claims 1-8, 10-19 and 21-26 distinguish over Microsoft Excel 97 in view of U.S. Patent No. 5,960,437 to Krawchuk.

A key sub-issue is whether the phrase "to allow random selection within the file" used at column 56, line 11 of Krawchuk corresponds to the claimed feature of automatically extracting a random sampling of data from a data base.

VII.   GROUPING OF CLAIMS (37 C.F.R. § 1.192(C)(7))

Claims 1-8, 10-19 and 21-26 stand or fall together.

VIII.   ARGUMENT (37 C.F.R. § 1.192(C)(8))

In the final Office Action, the Examiner noted that claims 1-8, 10-19 and 21-26 are pending in the application and the Examiner rejected all claims as unpatentable over the prior

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art. By the Amendment Under 37 C.F.R. § 1.116, various claims were amended and this Amendment was entered. Thus, claims 1-8, 10-19 and 21-26 are pending in the application.

The Microsoft Excel 97 Reference ("Excel")

The Excel reference is directed to a spreadsheet program that incorporates several features which are believed to be advantageous over previous versions of Excel. The Excel program provides a graphical user interface for enhanced data-entry. A function, such as summing or cross-tabulating the selected data, may then be carried out for selected data which is extracted from a database. The selected cells may themselves include data extracted from the database. Alternatively, selected data, including data extracted from a database, may also be reordered by the user. Users may also create graphical representations of data extracted from the database from selected ranges of data. Excel fails to teach extracting data automatically at random from the database.

The Krawchuk Reference

U.S. Patent No. 5,960,437 to Krawchuk et al. is directed to an information storage system that provides an entirely self-contained environment for database management using a type of information system called a "fractal information system" (Krawchuk at col. 10, lines 37-39). Such a system removes all media- and programmer-induced links, and also removes all hardware dependencies (Krawchuk at col. 10, lines 54-60). Additionally, a fractal system permits an information system where all data is represented exclusively as database connections, accessible exclusively through database commands (Krawchuk at col. 13, lines 1-6).

The "building block" on which Krawchuk is built is referred to as a "Brick" (Krawchuk at col. 48, lines 66-67). The physical implementation of each brick is a block of storage holding several pointers which connect one Brick to other Bricks (Krawchuk at col. 49, lines 21-26). For example, in such an environment, "the name is not a collection of adjacent ASCII bytes. Rather, each byte in the name is stored as a member of the "Name-Letter" database set" (Krawchuk at col. 11, lines 8-10. "The most significant chance [in the manner of storing data] is that each letter must be stored separately in the information system so that it can be linked separately" (Krawchuk at col. 11, lines 19-21).

The invention of Krawchuk sequentially arranges Bricks by Brick number, with one record held in each brick (Krawchuk at col. 56, lines 7-10). An index file correlates Brick numbers to physical locations (Krawchuk at col. 56, lines 17-18). As the needs of the information storage system increase, additional indices and bricks may be added to expand the

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capacity of the system or adjust the system based on the operating system (Krawchuk, col. 56, lines 29-37).

Rejection of Claims 1-8, 10-19 And 21-26 Under 35 U.S.C. § 103

In item 4 on pages 2-5 of the final Office Action, the Examiner rejected claims 1-8, 10-19 and 21-26 under 35 U.S.C. § 103(a) as being unpatentable over Microsoft Excel 97 ("Excel") in view of U.S. Patent 5,960,437 to Krawchuk ("Krawchuk"). The rejection is traversed below.

The Present Claimed Invention Patentably Distinguishes Over The Prior Art

During prosecution, the applicants have urged that the disclosure of Krawchuk, col. 56, line 11, "to allow random selection within the file" is directed to random (direct) access and not "random extraction means for automatically extracting a random sampling of data from a database," as set forth in claim 1 of the subject application. More specifically applicants have urged that, if data were extracted at random in Krawchuk, it would be impossible to extract desired data from the database, rendering the method and system of Krawchuk inoperable. The Examiner, however, still appears to believe that Krawchuk's teaching of "random selection within a file" (col. 56, lines 7-15) also teaches "random extraction means for automatically extracting a random sampling of data from a database," as indicated by the Examiner's comments in item 5 on page 5 of the final Office Action and on page 2 of the November 4, 2003 Advisory Action.

As set forth on page 5 of the final Office Action, the Examiner continues to rely upon Krawchuk as disclosing extracting data automatically at random from a database. The key portion of Krawchuk relied on by the Examiner for this teaching is at column 56, lines 7-15 which recites:

> "A large relative file can be simulated by using several small
> relative files. Into these smaller files the Bricks are placed. As
> with the single vast relative file, one record holds one Brick. The
> Bricks are arranged sequentially by Brick number to allow random
> selection within the file. The number of Bricks per file is a function
> of the device where the file is stored. For optimal capacity and
> speed of access, the files are sized to be the largest possible size
> for their physical device or operating system."

Applicants submit that the Examiner continues to misinterpret the meaning of the phrase

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"to allow random selection within the file" set forth in col. 56, line 11 of Krawchuk. It is submitted that Krawchuk's use of the wording "random selection" (col. 56, line 11) refers to the ability to retrieve Bricks non-sequentially, based on the Brick numbers and an index file correlating Brick numbers to the physical files where the Bricks reside. *See* Krawchuk, col. 56, lines 17-20. Therefore it is submitted that "random selection" of data within a file is used to describe the selection of Bricks in non-sequential order, rather than the random sampling of data retrieved from the database in the present claimed invention. Thus, the desired data in Krawchuk is retrieved and, accordingly, extracted in a non-sequential fashion based on Brick number.

It is submitted that Krawchuk fails to teach random sampling of data stored in a database. Further, if Krawchuk taught random data extraction, it would be impossible to extract inputted or user specified data from the database because of the architecture of a fractal information system.

In the Advisory Action of November 4, 2003, the Examiner respectfully disagreed with Applicants' assertion that the "random selection within a file" of Krawchuk refers to the retrieval of Bricks in non-sequential order. In a fractal information system, as described in Krawchuk, *supra*, a file contains sequentially arranged Bricks. Each Brick contains pointers to other bricks to establish the relative location of the data that corresponds to that particular brick. For example, if a word was stored, each ASCII character in the word would be represented by a single Brick. Thus, a file representing the word "Patent" would be represented by six Bricks, each Brick corresponding to one letter of the word. Each of these six Bricks would store pointers to indicate the position of one specific character with respect to the adjacent characters. Because of these pointers, however, the bricks would not need to store the characters sequentially – i.e., Brick 1 need not store "P," because the pointers would indicate that the "P" belongs before Brick 6, which stores "a." Thus, in order to recreate the stored word, Krawchuk's "random selection" of data within a file would allow Bricks to be retrieved out-of-sequence because, so long as all of the characters in a word are retrieved, they can be assembled correctly, regardless of the order in which they are retrieved.

In contrast, application of the features of claim 1 of the present invention to Krawchuk would have dramatically different results. "[E]xtracting a random sampling of data from a database," as applied to Krawchuk, would retrieve only a group of randomly ordered characters, which would not equate to the stored information as originally entered. To illustrate this point, we note that a random sampling of the "Patent" file could produce groupings of characters such

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as "Pet," "taP," "nPe," or even "PPP," none of which are recognizable as the original entry.

In the November 4, 2003 Advisory Action, the Examiner also noted that "[t]he 'random sampling' of data from a database is the same as a data taken or selected at random from a database." Applicants respectfully note that the term "random sampling" is a statistical term, used to describe a sampling method in which all elements have an equal chance of selection, and observations are independent. That is, the value of one observation does not influence subsequent observations. Thus, "random sampling" may result in the same observation being returned repeatedly.

<u>Claim 1</u>

Referring to claim 1, it is submitted that the prior art does not teach or suggest:

> "random extraction means for automatically extracting a random sampling of data from a database;

> cross tabulation display means for displaying according to summing up conditions to set a range to be displayed a cross tabulation in which the random sampling of data extracted from the database by the random extraction means is cross summed up;

> cell specifying means for specifying at least one cell among a number of cells constituting said cross tabulation; and

> graph display means for displaying the random sampling of data extracted from the database as a graph within the range of the cell specified by said cell specifying means."

Therefore, it is submitted that claim 1 patentably distinguishes over the prior art.

Claims 2-8 and 10 depend, directly or indirectly, from claim 1 and include all of the features of that claim plus additional features which are not taught or suggested by the prior art. Therefore, it is submitted that these claims patentably distinguish over the prior art.

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Claim 12

Referring to claim 12, it is submitted that the prior art does not teach or suggest:

a random extraction operation extracting a random sampling of data automatically from a database;

a cross tabulation display operation displaying according to summing up conditions to set a range to be displayed a cross tabulation in which the random sampling of data extracted from the database by the random extraction operation is cross-summed up;

a cell specifying operation specifying at least one cell among a number of cells constituting said cross tabulation; and

a graph display operation displaying the random sampling of data extracted from the database as a graph within the range of the cell specified by said cell specifying operation.

Therefore, it is submitted that claim 12 patentably distinguishes over the prior art.

Claims 13-19 and 21-22 depend, directly or indirectly, from claim 12 and include all of the features of that claim plus additional features which are not taught or suggested by the prior art. Therefore, it is submitted that these claims patentably distinguish over the prior art.

Claim 23

Referring to claim 23, it is submitted that the prior art does not teach or suggest:

"a random extraction device automatically extracting a random sampling of data from a database;

a cross tabulation display device displaying according to summing up conditions to set a range to be displayed a cross tabulation in which the random sampling of data automatically extracted from

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the database is cross summed up;

a cell specifying device specifying at least one cell among a number of cells constituting said cross tabulation; and

a graph display device displaying the random sampling of data extracted from the database as a graph within the range of the cell specified by said cell specifying means."

Therefore, it is submitted that claim 23 patentably distinguishes over the prior art.

Claims 24-26 depend, directly or indirectly from claim 23 and include all of the features of that claim plus additional features which are not taught by the prior art. Therefore, it is submitted that claims 24-26 patentably distinguish over the prior art.

IX. CONCLUSION

In summary, it is submitted that claims 1-8, 10-19 and 21-26 patentably distinguish over the prior art.

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The Commissioner is authorized to charge any Appeal Brief fee or Petition for Extension of Time fee for underpayment or credit any overpayment to Deposit Account 19-3935.

Respectfully submitted,

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X. APPENDIX (37 C.F.R. § 1.192(9))

1. (PREVIOUSLY PRESENTED) An interactive data analysis support apparatus for supporting the analysis of data, said apparatus comprising:

random extraction means for automatically extracting a random sampling of data from a database;

cross tabulation display means for displaying according to summing up conditions to set a range to be displayed a cross tabulation in which the random sampling of data extracted from the database by the random extraction means is cross summed up;

cell specifying means for specifying at least one cell among a number of cells constituting said cross tabulation; and

graph display means for displaying the random sampling of data extracted from the database as a graph within the range of the cell specified by said cell specifying means.

2. (PREVIOUSLY PRESENTED) An interactive data analysis support apparatus according to claim 1, wherein said graph display means comprises display limiting means for limiting the range of the data to be displayed .

3. (PREVIOUSLY PRESENTED) An interactive data analysis support apparatus according to claim 2, wherein said graph display means comprises storage means for storing the range of the data to be displayed which is limited by said display limiting means as a summing up condition used by said cross tabulation display means, and said cross tabulation display means is capable of displaying cross tabulation in which the random sampling of data extracted from the database is cross-summed up according to the summing up condition stored by said storage means.

4. (PREVIOUSLY PRESENTED) An interactive data analysis support apparatus according to claim 1, wherein said graph display means comprises rearranging means for automatically rearranging in a graph the data to be displayed according to predetermined conditions.

5. (PREVIOUSLY PRESENTED) An interactive data analysis support apparatus according to claim 4, wherein said graph display means comprises storage means for storing data to be displayed which is rearranged by said rearranging means as a summing up condition

used by said cross tabulation display means, and said cross tabulation display means is capable of displaying cross tabulation in which the data extracted at random from the database is cross-summed up according to the summing up condition stored by said storage means.

6. (PREVIOUSLY PRESENTED) An interactive data analysis support apparatus according to claim 1, wherein said graph display means comprises:

automatic analyzing means for finding a new display item by extracting a characteristic of the random sampling of data extracted from said database, and display item-adding means for adding the new display item found by said automatic analyzing means to the graph.

7. (PREVIOUSLY PRESENTED) An interactive data analysis support apparatus according to claim 6, wherein

said graph display means comprises storage means for storing the new display item added by said display item-adding means as a summing up condition used by said cross tabulation display means, and said cross tabulation display means is capable of displaying cross tabulation in which the random sampling of data extracted from a database is cross-summed up according to the summing up condition stored by said storage means.

8. (PREVIOUSLY PRESENTED) An interactive data analysis support apparatus according to claim 1, wherein the random sampling of data extracted from said database is an aggregate of records composed of a number of data items.

10. (ORIGINAL) An interactive data analysis support apparatus according to claim 8, wherein said graph display means has a structure such that a graph is displayed designating said data item as an axis.

11. (ORIGINAL) An interactive data analysis support apparatus according to claim 10, wherein said graph display means comprises the same number of axes as the data items constituting said records, and plots a point corresponding to a value of each data item with regard to each of said records, to thereby display a graph in which points plotted on adjacent axes are connected by a segment.

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12. (PREVIOUSLY PRESENTED) A medium on which is recorded an interactive data analysis support program for supporting the analysis of data wherein there is recorded at least a program for executing:

a random extraction operation extracting a random sampling of data automatically from a database;

a cross tabulation display operation displaying according to summing up conditions to set a range to be displayed a cross tabulation in which the random sampling of data extracted from the database by the random extraction operation is cross-summed up;

a cell specifying operation specifying at least one cell among a number of cells constituting said cross tabulation; and

a graph display operation displaying the random sampling of data extracted from the database as a graph within the range of the cell specified by said cell specifying operation.

13. (PREVIOUSLY PRESENTED) A medium on which is recorded an interactive data analysis support program according to claim 12, wherein said graph display operation comprises a display limiting operation for limiting the range of the data to be displayed.

14. (PREVIOUSLY PRESENTED) A medium on which is recorded an interactive data analysis support program according to claim 13, wherein said graph display operation comprises a storage operation for storing the range of the data to be displayed which is limited by said display limiting operation as a summing up condition used by said cross tabulation display operation; and

said cross tabulation display operation is capable of displaying cross tabulation in which the random sampling of data extracted from a database is cross-summed up according to the summing up condition stored by said storage operation.

15. (PREVIOUSLY PRESENTED) A medium on which is recorded an interactive data analysis support program according to claim 12, wherein said graph display operation comprises a rearranging operation for automatically rearranging in a graph the data to be displayed according to predetermined conditions.

16. (PREVIOUSLY PRESENTED) A medium on which is recorded an interactive data analysis support program according to claim 15, wherein said graph display operation comprises a storage operation storing data to be displayed which is rearranged by said

rearranging operation as a summing up condition used by said cross tabulation display operation, and said cross tabulation display operation is capable of displaying cross tabulation in which the random sampling of data extracted from a database is cross-summed up according to the summing up condition stored by said storage operation.

17.   (PREVIOUSLY PRESENTED) A medium on which is recorded an interactive data analysis support program according to claim 12, wherein said graph display operation comprises:

an automatic analyzing operation for finding a new display item by extracting a characteristic of the random sampling of data extracted from said database, and a display item-adding function for adding the new display item found by said automatic analyzing operation to the graph.

18.   (PREVIOUSLY PRESENTED) A medium on which is recorded an interactive data analysis support program according to claim 17, wherein said graph display operation comprises a storage operation for storing the new display item added by said display item-adding operation as a summing up condition used by said cross tabulation display operation, and said cross tabulation display operation is capable of displaying cross tabulation in which the random sampling of data extracted from a database is cross-summed up according to the summing up condition stored by said storage operation.

19.   (PREVIOUSLY PRESENTED) A medium on which is recorded an interactive data analysis support program according to claim 12, wherein the random sampling of data extracted from said database is an aggregate of records composed of a number of data items.

21.   (PREVIOUSLY PRESENTED) A medium on which is recorded an interactive data analysis support program according to claim 19, wherein said graph display operation has a structure such that a graph is displayed designating said data item as an axis.

22.   (PREVIOUSLY PRESENTED) A medium on which is recorded an interactive data analysis support program according to claim 21, wherein said graph display operation comprises the same number of axes as the data items constituting said records, and plots a point corresponding to a value of each data item with regard to each of said records, to thereby display a graph in which points plotted on adjacent axes are connected by a segment.

23.   (PREVIOUSLY PRESENTED) An interactive data analysis support apparatus for supporting the analysis of data, said apparatus comprising:

a random extraction device automatically extracting a random sampling of data from a database;

a cross tabulation display device displaying according to summing up conditions to set a range to be displayed a cross tabulation in which the random sampling of data automatically extracted from the database is cross summed up;

a cell specifying device specifying at least one cell among a number of cells constituting said cross tabulation; and

a graph display device displaying the random sampling of data extracted from the database as a graph within the range of the cell specified by said cell specifying means.

24. (PREVIOUSLY PRESENTED) An interactive data analysis support apparatus according to claim 23, wherein said graph display device comprises display limiting device for limiting the range of the data to be displayed by an operation in a graph.

25.   (ORIGINAL) An interactive data analysis support apparatus according to claim 23, wherein said graph display device comprises a rearranging device for automatically rearranging in a graph the data to be displayed according to predetermined conditions.

26. (PREVIOUSLY PRESENTED) An interactive data analysis support apparatus according to claim 23, wherein said graph display means comprises:

an automatic analyzing device finding a new display item by extracting a characteristic of the random sampling of data extracted from said database, and a display item-adding device adding the new display item found by said automatic analyzing device to the graph.